Participatory agent-based simulation to set the sustainability of bushmeat hunting a matter of concern in the periphery of Korup National Park (Southwest Province of Cameroon)

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Abstract. An agent-based model (ABM) representing snare trapping of blue duikers (*Cephalophus monticola*) was designed and used to raise the awareness of local populations about the sustainability of bushmeat hunting activities in the region of the Korup National Park (South-West Cameroon). Village meetings based on a participatory agent-based modelling and simulation process were structured in three successive steps. During the first step, the spatial representation of a village surrounded by a portion of forest was co-designed and knowledge about the live-cycle traits and the behaviour of blue duikers was shared through the demonstration of the individual-based population dynamics module of the ABM. The objective of the second step, introducing the hunting module of the ABM, was to elicit snare trapping practices trough interactive simulation and to calibrate the hunting module by setting a value for the probability of a blue duiker to be caught by a snare trap. In a third step, a more realistic version of the ABM was introduced. The seven villages included in the process were located in the GIS-based spatial representation, and the number of "Hunter" agents for each village in the ABM was set according to the results of a survey. The demonstration of this last version triggered discussion about possible management scenarios. We are planning to use the ABM during a second round of village meetings to collectively assess these management scenarios.

Keywords. Bushmeat hunting; participatory agent-based simulation; community-based wildlife management.

Methodology. Participatory agent-based simulation to involve stakeholders in the design of the related ABM

	Spatial representation	Spatial extent	Hunting
Step 1	Co-designed Abstract	1 village 2.25 km² (15x15 cells)	None
Step 2	Abstract	2 villages 25 km² (50x50 cells)	Interactive simulation, then 10 hunter agents
Step 3	Realistic GIS-based	7 villages 288 km² (160x180 cells)	146 hunter agents